

Claims

What is claimed is:

1. 1. A method for testing circuit components comprising:
 2. moving a test stage under a first camera, wherein said test stage contains
 3. a test pedestal adapted to hold at least one test bar and at least one tray
 4. containing at least one test bar, each test bar containing at least one circuit
 5. component;
 6. visually aligning, with said first camera, a pickup collet with a selected
 7. one of said at least one test bar;
 8. picking up said selected test bar with said pickup collet;
 9. visually aligning, with said first camera, said test pedestal; and
 10. positioning said selected test bar on said test pedestal;
 11. moving said test stage under a second camera; and
 12. visually aligning, with said second camera, said selected test bar with a
 13. test site.
1. 2. A method in accordance with claim 1, further comprising:
 2. visually aligning, with said second camera, a selected circuit component
 3. contained in said selected test bar with said test site; and
 4. testing said selected circuit component.
1. 3. A method in accordance with claim 2 further comprising:
 2. subsequent to testing said selected circuit component, moving said test
 3. stage under said first camera;
 4. visually aligning, with said first camera, said test pedestal;

5 picking up the selected test bar with said pickup collet;
6 visually aligning, with said first camera, another one of said at least one
7 tray with said pickup collet, said another one of the at least one tray being an
8 output tray; and
9 positioning said selected test bar on said output tray.

1 4. A method in accordance with claim 1 further comprising:

2 positioning said pickup collet at a first collet position prior to moving
3 said test stage under said first camera; and

4 positioning said pickup collet at a second collet position prior to picking
5 up said selected test bar with said pickup collet and positioning said selected
6 test bar on said test pedestal.

1 5. A method in accordance with claim 1, wherein the steps of moving the
2 test stage comprise moving the test stage to predetermined coordinates, and the
3 steps of visually aligning comprise processing a camera image.

1 6. A method in accordance with claim 1, wherein said circuit components
2 comprise optical devices.

1 7. A method in accordance with claim 1, wherein said at least one test bar
2 further comprises an identification code.

1 8. A method in accordance with claim 7 further comprising acquiring an
2 image, with said first camera, of said identification code.

1 9. A test fixture for testing circuit components, said fixture comprising:

2 at least one test bar, each test bar containing a plurality of circuit
3 components;

4 at least one tray, each tray containing a plurality of test bars;

5 a test pedestal adapted to hold at least one test bar;

6 a transportable test stage comprising said at least one tray and said test
7 pedestal, wherein said at least one tray and said test pedestal are in a fixed
8 position with respect to said test stage;

9 a pickup collet for picking up and placing said at least one test bar;

10 a first camera for performing visual alignment with said pickup collet;
11 and

12 a second camera for visually aligning said circuit component with a test
13 site.

1 10. A test fixture in accordance with claim 9, wherein said circuit
2 components comprise optical devices.

1 11. A test fixture in accordance with claim 10, wherein said optical devices
2 comprise at least one of a laser diode and a wavelength division multiplexer.

1 12. A test fixture in accordance with claim 9, wherein each circuit
2 component comprises at least one test pad for making contact with test probes
3 at said test site, the surface area of each test pad being approximately 2.5×10^{-3}
4 square inches.

1 13. A test fixture in accordance with claim 9, wherein said plurality of test
2 bars contained by each tray is held in place by a vacuum.

1 14. A test fixture in accordance with claim 9, wherein said at least one test
2 bar contained by said test pedestal is held in place by a vacuum.

1 15. A test fixture in accordance with claim 9, wherein said plurality of
2 circuit components contained by each test bar is held in place by a vacuum.

1 16. A test fixture in accordance with claim 9, wherein said test bar is held in
2 contact with said pickup collet by a vacuum.

1 17. A test fixture in accordance with claim 9, wherein said at least one test
2 bar comprises an identification code.

1 18. A test fixture in accordance with claim 9, wherein said at least one tray
2 is held in contact with said test stage by a vacuum.

1 19. A test fixture in accordance with claim 9, wherein the test stage is
2 moved to predetermined coordinates, the pickup collet is aligned with the test
3 pedestal and each tray by processing a camera image, and said test pedestal is
4 aligned with said test site by processing a camera image.

1 20. A test fixture in accordance with claim 9, wherein said test site
2 comprises at least one of a front light detector, a rear light detector, and a
3 spectroscopic lens.

1 21. A test fixture in accordance with claim 9, wherein said test pedestal
2 comprises a cooling device for maintaining a test bar placed on said test
3 pedestal at an approximately constant temperature.

1 22. A test fixture in accordance with claim 21, wherein said temperature is
2 25° Centigrade.